STATE OF MISSOURI
Matt Blunt, Governor • Doyle Childers, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

JAN - 9 2006

Dr. Gregory Langley
President / Owner
Langley Animal Clinic
Route 1, Box 1279-A, Missouri Highway 142
Thayer, MO 65791

RE: New Source Review Permit, Permit by Rule
Project Number: 2005-04-076, Facility ID Number: 149-0023

Dear Dr. Langley:

On April 21, 2005, you submitted a "Permit by Rule" application for a animal crematory. The original intention of the Permit by Rule was to allow a source to construct and operate the applicable source as soon as you submitted the application to our office. The Permit by Rule language states that the permit shall be approved after an initial on-site compliance inspection. However, in order to streamline the permitting process and satisfy requirements of the Environmental Protection Agency, the department has modified the procedures on these types of permits. The department now intends to review and approve permit by rule applications within seven days of submittal. The department will verify the permit during an on-site compliance inspection at a later date.

However, this does not affect your application or permit. Your Permit by Rule notification is valid as of the submittal day, April 21, 2005. Enclosed with this letter are a permit certificate and a copy of your application. The reverse side of the permit certificate has important information concerning standard permit conditions and your rights and obligations under the laws and regulations of the State of Missouri. The application contains the special conditions applicable to your source. Operation in accordance with these conditions is necessary for continued compliance. Please keep the permit form and application in your files.

If you have any questions regarding this permit, please do not hesitate to contact me at (573) 751-4817, or you may write to me at the Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102. Thank you for your attention to this matter.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore

Kyra L. Moore
Permits Section Chief

KLM: jbl

Enclosures

c: Southeast Regional Office
PAMS File: 2005-04-076
Permit Number: 012006-004

Missouri Department of Natural Resources
Missouri Air Conservation Commission
Air Pollution Control Program

PERMIT TO CONSTRUCT

PERMIT BY RULE

Under the authority of RSMo 643 and the Federal Clean Air Act the applicant is authorized to construct and operate the air contaminant source(s) described below, in accordance with the laws, rules, and conditions set forth here in.

Construction Permit Number: 012006-004
Project Number: 2005-04-076
Installation ID: 149-0023

Installation Name and Address
Langley Animal Clinic
Route 1, Box 1279-A, Missouri Highway 142
Thayer, MO 65791
Oregon County

Parent Company's Name and Address
N/A

Installation Description:
Animal crematory, fired off propane gas.

JAN - 9 2006

Effective Date

Director or Designee
Department of Natural Resources

STANDARD CONDITIONS:

Permission to construct may be revoked if you fail to begin construction or modification within two years from the effective date of this permit. Permittee should notify the Air Pollution Control Program if construction or modification is not started within two years after the effective date of this permit, or if construction or modification is suspended for one year or more.

You will be in violation of 10 CSR 10-6.060 and 10 CSR 10-6.062 if you fail to adhere to the specifications and conditions listed in your permit by rule application and this permit. Specifically, all air contaminant control devises shall be operated and maintained as specified in the application, associated plans and specifications.

You must notify the Department of Natural Resources Regional office responsible for the area within which the equipment is located within 15 days after the actual start up of this air contaminant source or as soon as you receive your permit.

A copy of this permit and permit notification shall be kept at the installation address and shall be made available to Department of Natural Resources' personnel upon request.

You may appeal this permit or any of the listed special conditions to the Administrative Hearing Commission (AHC), P.O. Box 1557, Jefferson City, Missouri 65102, as provided in RSMo 643.075.6 and 621.250.3. If you choose to appeal, you must file a petition with the AHC within thirty days after the date this decision was mailed or the date it was delivered, whichever date was earlier. If any such petition is sent by registered mail or certified mail, it will be deemed filed on the date it is mailed. If it is sent by any method other than registered mail or certified mail, it will be deemed filed on the date it is received by the AHC.

If you choose not to appeal, this certificate, the project review, your application and associated correspondence constitutes your permit to construct. The permit allows you to construct and operate your air contaminant sources(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources and other applicable federal, state and local laws and ordinances.

The Air Pollution Control Program invites your questions regarding this air pollution permit. Please contact the Construction Permit Unit at (573) 751-4817. If you prefer to write, please address your correspondence to the Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, attention: Construction Permit Unit.

GENERAL ENVIRONMENTAL ENGINEERING, INC.

April 6, 2005

Air Pollution Control Program
Permit-By-Rule
PO Box 176
Jefferson City, MO 65102

Re: Application For Authority To Construct Permit By Rule Notification
Langley Animal Clinic (CB200)
Route 1, Box 1279-A
Thayer, Oregon County, MO 65791

To Whom It May Concern:

Pursuant to 10CSR 10-6.062(3)(b)2 the above referenced facility is capable of meeting the requirements of the Crematories and Animal Incinerators Permit By Rule Requirements. Enclosed, find a signed and dated Application For Authority To Construct Permit By Rule Notification, as well as an application fee check in the amount of $700.00.

The facility will be installing a dual chamber Crawford Industrial Group Model CB200 animal crematory.

Should you have any questions or need any additional information for issuing the proper permit, please contact me at (407) 822-7655.

Respectfully submitted,
General Environmental Engineering, Inc.

Douglas W. Bauman, MSE, P.E.
Vice President/Senior Engineer

Attachment: Crematories and Animal Incinerators Permit By Rule Requirements Notification Package

cc: Dr. Greg Langley
Brian Gamage, CIG (w/out attachments)
File

RECEIVED
2005 APR 21 AM 11:50

MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM
P.O. BOX 176, JEFFERSON CITY, MO 65102-0176

APPLICATION FOR AUTHORITY TO CONSTRUCT PERMIT BY RULE NOTIFICATION

CREMATORIES AND ANIMAL INCINERATORS

APCP USE ONLY	
CHECK NO. 5303	CHECK RECEIVED (MM/DD/YY) 4/21/05
CHECK AMOUNT $ 700.00 JC	CHECK DATE (MM/DD/YY) 4/18/05
PROJECT NO.	PERMIT NO.

SECTION A: GENERAL NOTIFICATION INFORMATION – ALL NOTIFICATIONS MUST BE ACCOMPANIED BY A $700 FEE.

SECTION A-1: GENERAL INSTALLATION INFORMATION

1. INSTALLATION NAME: Langley Animal Clinic	2. FIPS: 149	3. PLANT NO.
4. INSTALLATION STREET ADDRESS: Route 1, Box 1279-A No Hwy 142		
5. INSTALLATION MAILING ADDRESS: Same		
6. CITY: Thayer	STATE: MO	ZIP CODE: 65791
7. COUNTY NAME: Oregon	8. 1/4, of NW 1/4, of NE SECTION 33 TOWNSHIP 22 RANGE 5	
9. PARENT COMPANY: NA		
10. PARENT COMPANY MAILING ADDRESS: NA		
11. CITY: NA	STATE: NA	ZIP CODE: NA
12. INSTALLATION CONTACT PERSON: Dr. Gregory Langley	13. CONTACT PERSON'S TITLE: Owner	
14. CONTACT PERSON'S MAILING ADDRESS: Route 1, Box 1279-A		
15. INSTALLATION CONTACT TELEPHONE NO.: (417) 264-2206	16. INSTALLATION CONTACT FAX NO.: ( )	
17. INSTALLATION CONTACT E-MAIL ADDRESS: langleyvet@tek-web.com		
18. PROJECTED DATE TO COMMENCE CONSTRUCTION: May 15, 2005	19. PROJECT DATE OF OPERATION STARTUP: May 25, 2005	

SECTION A-2: INSTALLATION DESCRIPTION

20. Crawford Model CB200 Animal Crematory, fired off propane

SECTION A-3: CERTIFICATION STATEMENT

I certify that I have personally examined and am familiar with the information in this application and believe that the information submitted is accurate and complete. I am aware that making a false statement or misrepresentation in this application is grounds for denying or revoking this permit.

21. SIGNATURE OF RESPONSIBLE OFFICIAL: Greg Langley	22. DATE: 4/18/05
23. TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL: Dr. Gregory Langley	24. RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER: (417) 264-2206
25. TITLE OF RESPONSIBLE OFFICIAL: President / Owner	

SECTION B: SPECIAL CONDITIONS FOR CREMATORIES AND ANIMAL INCINERATORS

Construction and operation of this new air pollution source is subject to the special conditions listed below. These special conditions are based on the authority granted to the Missouri Air Pollution Control Program by the Missouri Air Conservation Law (specifically RSMo. 643.075) and by the Missouri Rules listed in Title 10, Division 10 of the Code of State Regulations (specifically 10 CSR 10-6.062 *"Construction Permits by Rule"*).

Please indicate by marking the appropriate box as to whether or not the emission source complies with the rule listed in the applicable emission limit or standard. If any of the applicable emission source boxes are checked no, your source is not eligible for a crematories and animal incinerators permit by rule.

This Permit By Rule applies only to Crematories and Animal Incinerators constructed after October 31, 2003.

SPECIAL CONDITION	EMISSION SOURCE COMPLY?	APPLICABLE EMISSION LIMIT OR STANDARD	METHOD OF COMPLIANCE
10 CSR 10-6.062(3)(B)2.A.	☑ YES ☐ NO	The materials to be disposed of shall be limited to noninfectious human materials removed during surgery, labor and delivery, autopsy, or biopsy including body parts, tissues and fetuses, organs, bulk blood and body fluids, blood or tissue laboratory specimens, and other noninfectious anatomical remains or animal carcasses in whole or in part. The owner or operator shall minimize the amount of packaging fed to the incinerator, particularly plastic containing chlorine. The incinerators shall not be used to dispose of other non-biological medical wastes including, but not limited to, sharps, rubber gloves, intravenous bags, tubing, and metal parts.	Proper work practice.
10 CSR 10-6.062(3)(B)2.B.	☑ YES ☐ NO	The manufacturer's rated capacity (burn rate) shall be two hundred (200) pounds per hour or less.	Proper work practice.
10 CSR 10-6.062(3)(B)2.C.	☑ YES ☐ NO	The incinerator shall be a dual-chamber design.	Proper work practice.
10 CSR 10-6.062(3)(B)2.D.	☑ YES ☐ NO	Burners shall be located in each chamber, sized to manufacturer's specifications, and operated as necessary to maintain the minimum temperature requirements of subparagraph 10 CSR 10-6.062(3)(B)2.E. at all times when the unit is burning waste.	Proper work practice.
10 CSR 10-6.062(3)(B)2.E.	☑ YES ☐ NO	Excluding crematories, the second chamber must be designed to maintain a temperature of one thousand six hundred degrees Fahrenheit (1,600°F) or more with a gas residence time of one-half (1/2) second or more. The temperature shall be monitored with equipment that is accurate to plus or minus two percent (±2%) and continuously recorded. The thermocouples or radiation pyrometers shall be fitted to the incinerator and wired into a manual reset noise alarm such that if the temperature of either of the two (2) chambers falls below the minimum temperature above, the alarm will sound at which time plant personnel shall take immediate measures to either correct the problem or cease operation of the incinerator until the problem is corrected	Proper work practice and maintenance of proper alarm records. These records shall be maintained for not less than five (5) years, and they shall be immediately available to any Missouri Department of Natural Resources personnel upon request.
10 CSR 10-6.062(3)(B)2.F.	☑ YES ☐ NO	There shall be no obstruction to stack flow, such as by rain caps, unless such devices are designed to automatically open when the incinerator is operated. Properly installed and maintained spark arresters are not considered obstructions.	Proper work practice.

SECTION B: SPECIAL CONDITIONS FOR CREMATORIES AND ANIMAL INCINERATORS (CONTINUED)			
SPECIAL CONDITION	**EMISSION SOURCE COMPLY?**	**APPLICABLE EMISSION LIMIT OR STANDARD**	**METHOD OF COMPLIANCE**
10 CSR 10-6.062(3)(B)2.G.	☑ YES ☐ NO	Each incinerator operator shall be trained in the incinerator operating procedures as developed by the American Society of Mechanical Engineers (ASME), by the incinerator manufacturer, or by a trained individual with more than one (1) year experience in the operation of the incinerator that the trainee will be operating. Minimum training shall include basic combustion control parameters of the incinerator and all emergency procedures to be followed should the incinerator malfunction or exceed operating parameters. An operator who meets the training requirements of this condition shall be on duty and immediately accessible during all periods of operation. The manufacturer's operating instructions and guidelines shall be posted at the unit and the unit shall be operated in accordance with these instructions.	Proper work practice and maintenance of proper operator training records. These records shall be maintained for not less than five (5) years, and they shall be immediately available to any Missouri Department of Natural Resources personnel upon request.
10 CSR 10-6.062(3)(B)2.H.	☑ YES ☐ NO	The incinerator shall have an opacity of less than ten percent (10%) at all times.	Proper work practice such that no opacity violations are noted.
10 CSR 10-6.062(3)(B)2.I.	☑ YES ☐ NO	Heat shall be provided by the combustion of natural gas, liquid petroleum gas, or Number 2 fuel oil with less than three-tenths percent (0.3%) sulfur by weight, or by electric power.	Proper work practice.
10 CSR 10-6.062(3)(B)2.J.	☑ YES ☐ NO	The operator shall maintain a log of all alarm trips and the resulting action taken. A written certification of the appropriate training received by the operator, with the date of training, that includes a list of the instructor's qualifications or ASME certification school shall be maintained for each operator. The operator shall maintain an accurate record of the monthly amount and type of waste combusted.	Determined through proper alarm and operator training record keeping. These records shall be maintained for not less than five (5) years, and they shall be immediately available to any Missouri Department of Natural Resources personnel upon request.

SECTION C: OTHER POTENTIALLY APPLICABLE REQUIREMENTS

This section is intended to identify regulations that may apply to this installation. There may be others not listed that apply. To determine rule applicability and specific standards please consult the appropriate sections in the Code of Federal Regulations (CFR) and Code of State Regulations (CSR) for the full text of the applicable requirements.

Please note: this permit allows you to construct and operate your air contaminant source(s), but in no way relieves you of your obligation to comply with all applicable provisions of the Missouri Air Conservation Law, regulations of the Missouri Department of Natural Resources, and other applicable federal, state, and local laws and ordinances.

REGULATION OR CONSTRUCTION PERMIT REFERENCE	APPLICABLE EMISSION LIMIT OR STANDARD	METHOD OF COMPLIANCE
10 CSR 10-2.100, 10-3.030, or 10-4.090, 10-5.070 Open Burning Restrictions	Shall not conduct, cause, permit or allow a salvage operation, the disposal of trade wastes or burning of refuse by open burning.	Any person intending to engage in open burning shall submit a request to the Director.
10 CSR 10-2.070, 10-3.090 or 10-4.070, Restriction of Emission of Odors	No person may cause, permit or allow the emission of odorous matter in concentrations and frequencies or for durations that odor can be perceived when air is diluted to 1:7 volumes of odorous to odor-free air for 2 separate trails not less than 15 minutes apart within 1 hour.	No odor violations noted, if and when scentometer readings are taken.
10 CSR 10-5.160 Control of Odors in the Ambient Air	No person shall emit odorous matter as to cause an objectionable odors unless within the limits established by this rule.	No odor violations noted, if an when scentometer readings are taken.
10 CSR 10-5.170 Control of Odors From Processing Animal Matter	No person shall operate or use any device, machine, equipment, or other contrivance for the reduction of animal matter unless all gases, vapors, and gas-entrained effluents from the facility are incinerated at a temperature of not less than 1,200°F for a period of not less than 0.3 seconds and otherwise in compliance with this rule.	Proper work practice.
10 CSR 10-6.050, Start-up, Shutdown and Malfunction Conditions	Shall not commence construction or modification of any installation subject to this rule; begin operation after construction or modification; or begin operation of any installation which has been shut down longer than 5 years without first obtaining a permit.	In the event of a malfunction, which results in excess emissions that exceed 1 hour, the permittee shall implement corrective action and submit reports.
10 CSR 10-6.065, Operating Permits	The permittee shall comply with all applicable requirements identified in the operating permit (OP); file for timely renewal of this OP; and retain a copy of the OP on-site and make available to any MDNR personnel upon request.	The permittee shall submit an annual compliance certification in accordance with the regulation. The permittee shall maintain a current equipment list on-site with the date of installation of the equipment.
10 CSR 10-6.110, Submission of Emission Data, Emission Fees and Process Information	Submittal of Emission Inventory Questionnaire (EIQ) and emission fees by frequency noted in 10 CSR 10-6.110.	The permittee shall complete and submit an EIQ in accordance with 10 CSR 10-6.110.
10 CSR 10-6.200 Hospital, Medical, Infectious Waste Incinerators	No owner or operator shall cause to be discharged into the atmosphere any gases that contain stack emissions in excess of those listed in 10 CSR 10-6.200(3)(A).	Proper work practice and maintenance of appropriate performance test results.
10 CSR 10-6.070 New Source Performance Regulations	The following federal NSPS standards may apply: (Ec) Medical Waste Incinerators. Standards of Performance for Incinerators.	As required by regulations.

MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM

APPLICATION FOR AUTHORITY TO CONSTRUCT
PERMIT BY RULE NOTIFICATION
CREMATORIES AND ANIMAL INCINERATORS

INSTRUCTIONS

By submitting your notification, you are accepting all conditions and terms stated in this form. If you find the special conditions listed in Section B unacceptable, you may choose to submit a construction permit application and undergo a case-by-case review.

Please refer to the following line-by-line instructions to complete the notification. The notification, along with the $700.00 fee, should be mailed to:

Air Pollution Control Program
Permit-By-Rule
P.O. Box 176
Jefferson City, Missouri 65102

You must also retain a copy of the notification at the installation and make it immediately available to any inspector.

Once the fee and notifications have been mailed or hand-delivered, you are free to begin construction of your project under the special conditions that you have accepted.

The Air Pollution Control Program will send you a letter acknowledging receipt of your notification with a permit number and a project number for agency tracking purposes.

A copy of this electronic package may be obtained from the Department of Natural Resources Air and Land Protection Division's web site at: http://www.dnr.mo.gov/alpd/apcp/PermitInfo.htm.

If you have any questions about the notification form or the permit-by-rule notification procedure, please feel free to contact the Permit Section at (573) 751-4817.

NOTIFICATION FORM INSTRUCTIONS

1.) **Installation Name:** Enter the official company name and/or plant designation for the installation that is making the permit-by-rule notification.

2.) **FIPS Number:** Enter the official FIPS Number (3 digit code) which corresponds to the county name for the county in which the installation is located. Please refer to http://www.itl.nist.gov/fipspubs/co-codes/mo.txt for a listing. The FIPS number in combination with the Plant Number provides the identification/tracking information for the installation in the State/Federal databases.

3.) **Plant Number:** Enter the official Plant Number that has been assigned to the installation by the respective State or Local Agencies. If you do not know your plant number, please leave blank.

4.) **Installation Street Address:** Enter the street address of the physical location of installation.

5.) **Installation Mailing Address:** Enter the mailing address if that address is different from the street address.

6.) **City, State and Zip Code:** Enter the City, State and Zip Code of the physical location of the installation.

7.) **County:** Enter the county in which the installation is located.

8.) **Section, Township, Range:** Enter the appropriate information on the Section, Township and Range in which the installation is located.

9.) **Parent Company:** Complete this block if this installation is totally or partially owned by another company.

10.) **Parent Company Mailing Address:** Complete this block if this installation is totally or partially owned by another company.

11.) **Parent Company City, STate and Zip Code:** Complete this block if this installation is totally or partially owned by another company.

12.) **Installation Contact Person:** Enter the name of the person who is most familiar with the operations of the installation and who can answer any questions regarding information about the installation.

13.) **Contact Person's Title:** Enter the title of the contact person.

14.) **Contact Person's Mailing Address:** Enter the mailing address for the Contact Person.

15.) **Installation Contact Person's Telephone Number:** Enter the Contact Person's telephone number.

16.) **Installation Contact Person's Fax Number:** Enter the Contact Person's fax number.

NOTIFICATION FORM INSTRUCTIONS (CONTINUED)

17.) **Installation Contact Person's E-Mail Address:** Enter the Contact Person's e-mail address.

18.) **Projected Date to Commence Construction:** Enter the date you intend to commence construction of your installation.

19.) **Projected Date of Operation Startup:** Enter the date you plan to begin operation with the installation.

20.) **Installation Description:** Enter the general product manufactured, the material handled by your installation and principal activity that is performed at this installation.

21.) **Signature of Responsible Official:** Enter the signature of the installation's official, certifying that the notification is accurate and complete. Notifications without a signed certification are not considered complete. A responsible official is:

1. The president, secretary, treasurer or vice-president of a corporation in charge of a principal business function, or any other person who performs similar policy and decision-making functions for the corporation or a duly authorization representative of this person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either-

   a) The facilities employ more than 250 person or have a gross annual sales or expenditures exceeding twenty-five million dollars (in second quarter 1980 dollars); or

   b) The delegation of authority to his representative is approved in advance by the permitting authority.

2. A general partner in a partnership or the proprietor in a sole proprietorship.

3. Either a principal executive officer or a ranking elected official in a municipality, state, federal, or other public agency. For the purpose of this part, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the operations of a principal geographic unit of the agency; or

4. The designated representative of an affected source insofar as actions, standards, requirements or prohibitions under Title IV of the Clean Air Act or the regulations promulgated under the Act are concerned or the designated representative for any purposes under Part 70.

22.) **Date:** Enter the date that the Signature of the Responsible Official was obtained.

23.) **Type or Print Name of Responsible Official:** Type or print the name of the Responsible Official signing in item 21.

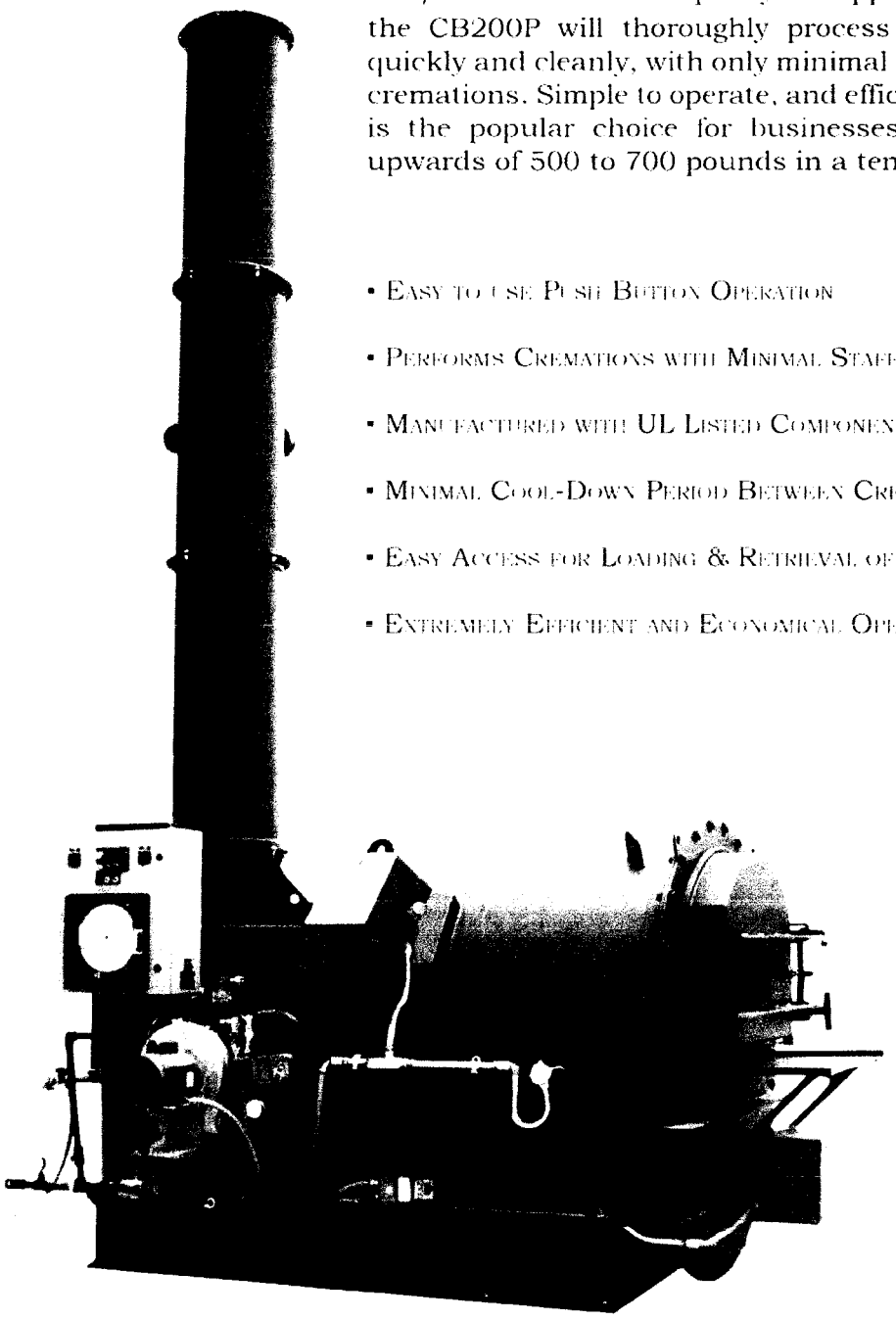
24.) **Responsible Official's Telephone Number:** Enter the telephone number where the Responsible Official may be contacted who signed in item 21.

25.) **Title of Responsible Official:** Enter the official title of the Responsible Official from item 21.

CRAWFORD MODEL CB200P BATCH CREMATORY

NATURAL GAS, LPG, OR DIESEL

The Crawford Model CB200P is a multi-chambered, batch load crematory, designed to comply with today's most stringent environmental and safety standards. The CB200P is an ideal system in which to process individual or communal cremations. With a cremation rate of 70 lbs/hr and a load capacity of approximately 200 pounds, the CB200P will thoroughly process your cremation needs quickly and cleanly, with only minimal cool-down time between cremations. Simple to operate, and efficient to run, the CB200P is the popular choice for businesses that need to process upwards of 500 to 700 pounds in a ten hour period.



- Easy to Use Push Button Operation
- Performs Cremations with Minimal Staff Participation
- Manufactured with UL Listed Components for Safe Operation
- Minimal Cool-Down Period Between Cremation Cycles
- Easy Access for Loading & Retrieval of Cremated Remains
- Extremely Efficient and Economical Operation

CRAWFORD MODEL CB200P BATCH CREMATORY

CRAWFORD

CRAWFORD
industrial group, LLC

9101 Parkers Landing Orlando, Florida 32824-8093
voice: 407.851.0993 facsimile: 407.851.2406
sales and service: 1.800.228.0884

www.animal-cremation.com
www.crawfordequipment.com

CRAWFORD MODEL CB200P SPECIFICATIONS

Model:	CB200P (gas fired - std. / oil fire option - available)
Type:	Hot hearth, multiple chamber, controlled air, batch cycle
Capacity ratings:	@ 5,500 Btu/lb. waste - 70 lb./hr.
Batch load capacity:	10 cu. ft. (200 lbs. @ 25 lb./cu. ft. density)
Overall dimensions:	10'-4" L x 6'-9" W x 5'-8" H (w/o stack) With std. 12' stack = 17'-8"' el. from grade
Approx. system weight:	11,000 lbs.
Required fuel: NG/LPG **Diesel Oil**	1.15 MMBtu/hr Pressure: 9" W.C. 9 Gallons/Hour, Tank to be within 10'
Required electrical supply:	115 V, 1Ø, 60 Hz (50 Hz & alt. voltage available) 20 amp @ single point connection
Primary chamber volume:	26 cu. ft.
Hearth Area:	7 sq. ft.
Secondary chamber volume:	34 cu. ft.
Primary burner capacity:	400,000 Btu/hr. (modulated control)
Secondary burner capacity:	750,000 Btu/hr. (modulated control)
Charging/cleanout door:	36"W x 26"H. opening (manual hinged type)
Combustion air supply:	99 scfm (std.- ¾ hp 120V, 1Ø, 60 Hz)
Construction:	.250" A36 CS plate shells .250" x 3" FB reinforcement 4" 3000°F cast refractory lining 1" 1900°F insulation 2600°, 8# fiber w/silica free, zirconia coating in door
Stack:	18"od x 12"id x 48"L sections (qty. 2 std.) 10 ga. A36 CS shell 3" 2400°F LWI castable approx. weight - 125 lb./ft.

CRAWFORD MODEL CB200P BATCH CREMATORY

CRAWFORD

CRAWFORD industrial group, LLC

9101 Parkers Landing Orlando, Florida 32824-8093
voice: 407.851.0993 facsimile: 407.851.2406
sales and service: 1.800.228.0884

www.animal-cremation.com
www.crawfordequipment.com

Predicted Operational Cost Analysis
Model CB200

Operating Fuel Costs

Fuel Use Assumptions

a. Hours of operation:	3 Hour Cycle
b. Incinerator outlet temperature:	1800°F
c. Average waste stream fuel content:	1,000 BTU per Pound
d. Average auxiliary fuel usage:	450,000 BTU per Hour
e. Cost per therm or gallon of fuel:	.50 per Therm or Gallon
f. Cremation rate	70 Pounds per Hour

Fuel Use Calculations

$\frac{450{,}000 \text{ BTU / HR}}{1000 \text{ BTU / FT}^3}$	=	450 Cubic Feet per Hour Fuel Usage
$\frac{450 \text{ CF / HR}}{100 \text{ CF / Thm}}$	=	4.5 Thm per Hour Fuel Usage
4.5Thm x $.50 / Thm	=	$2.25 per Hour of Operation

Operating Electrical Cost

Electricity Use Assumptions

a. Hours of operation:	3 Hour cycle
b. Maximum horsepower consumption:	1 HP
c. Electrical service factor:	.75
d. Electricity cost	.06 / KW

Electricity Use Calculations

1 HP x .75	=	.75 KW / Hr usage
.75 KW / Hr x .06 / KW	=	$0.045 / Hr of operation

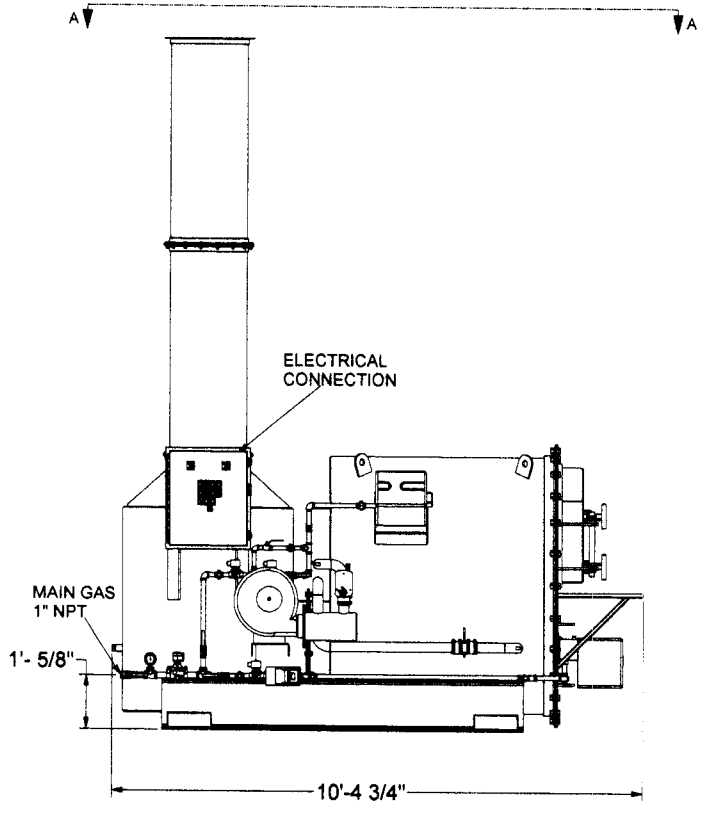
Total Net Operating Costs

$2.30 per Hour of Operation

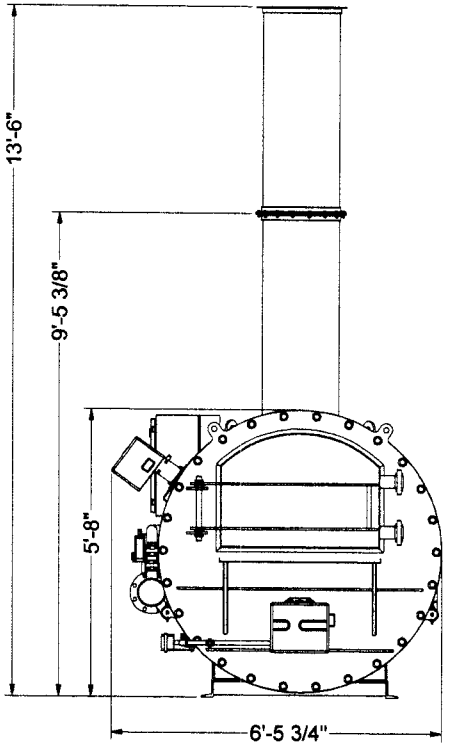
$0.03 per Pound Cremated

ELECTRICAL:
SINGLE POINT CONECTION
115V, 1 PHASE, 60 HZ, 20 AMP
(50 Hz and Alternative Voltage Optional)

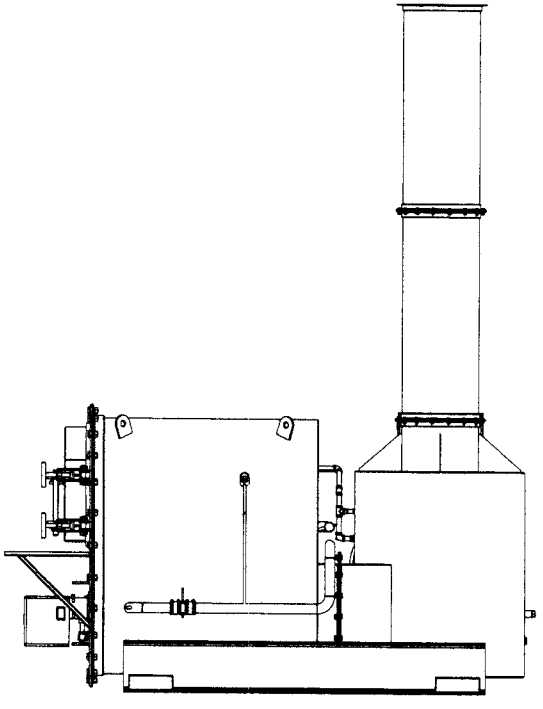
GAS REQUIREMENTS:
FUEL SUPPLY MUST BE CAPABLE OF FLOWING
MAIN 1.15 MMBTU/ HR @ 6" WC @ 1" HEADER



LEFT VIEW



FRONT VIEW



RIGHT VIEW

NOTE:
ALL ILLUSTRATIONS COVER THE GENERAL APPEARANCE OF CRAWFORD INDUSTRIAL GROUP, LLC PRODUCTS AT THE TIME OF PUBLICATION AND WE RESERVE THE RIGHT TO MAKE CHANGES IN DESIGN AND CONSTRUCTION AT ANY TIME WITHOUT NOTICE.

REV	DATE	DESCRIPTION	NAME

DRAWN: jm L 2/5/2004
RTU
DESIGNER: jm L

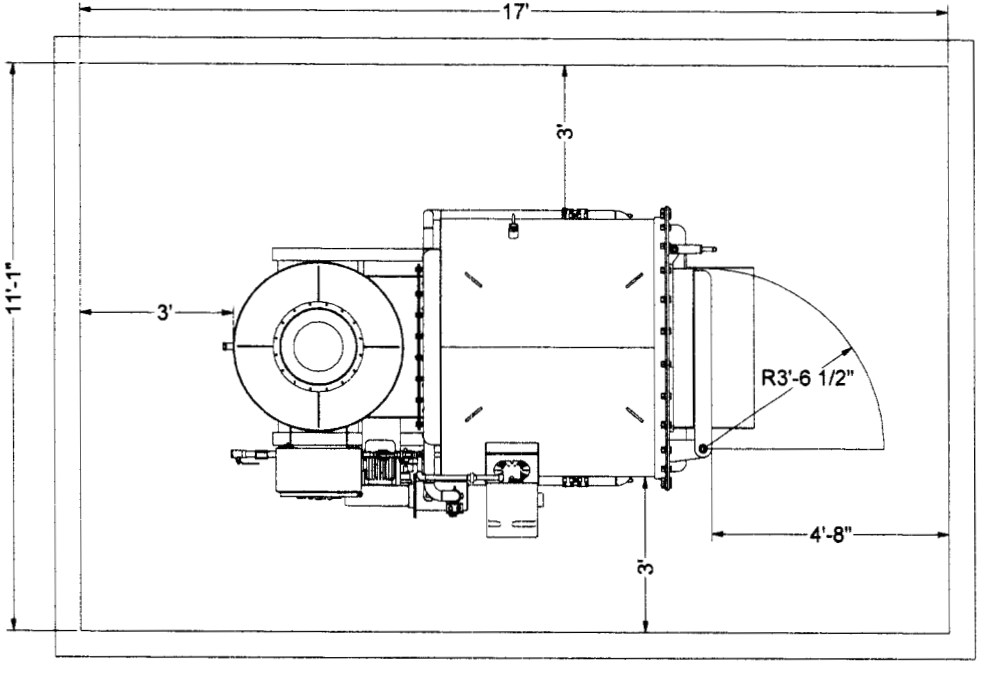
CRAWFORD INDUSTRIAL GROUP, LLC
9101 PARKERS LANDING, ORLANDO,FL 32824 (407) 851-0993

TITLE
CB200 / CB28H

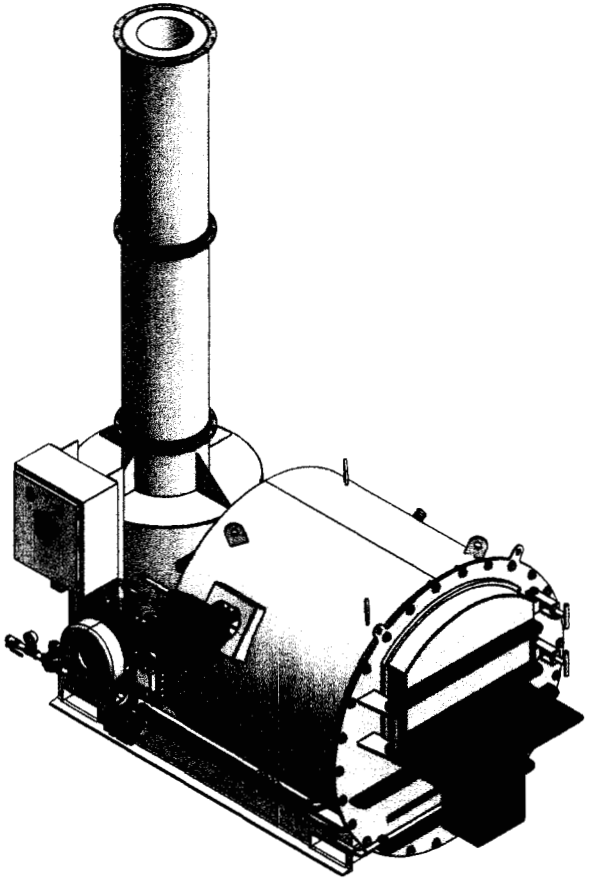
PROJECT NO.
DRAWING
CB26-GA
REV

SIZE D SCALE SHEET 1 OF 2

FLOOR TYPE NONCOMBUSTIBLE LOAD BEARING TO SUPPORT 11,000 LBS.
CONSULT LOCAL BUILDING CODES AND ORDINANCES FOR ANY
RESTRICTIONS WHICH MAY APPLY.



VIEW A-A
RECOMMENDED CLEARANCES



NOTE:
ALL ILLUSTRATIONS COVER THE GENERAL APPEARANCE OF CRAWFORD INDUSTRIAL GROUP, LLC PRODUCTS AT THE TIME OF PUBLICATION AND WE RESERVE THE RIGHT TO MAKE CHANGES IN DESIGN AND CONSTRUCTION AT ANY TIME WITHOUT NOTICE.

REV	DATE	DESCRIPTION	NAME
			DRAWN Jim L. 2/5/2004
			RTM
			DESIGNER Jim L.

CRAWFORD INDUSTRIAL GROUP, LLC
9101 PARKERS LANDING, ORLANDO, FL 32824 (407) 851-0865

TITLE: CB200 / CB26H

PROJECT NO	DRAWING	REV
	CB26-GA	

SIZE D | SCALE | SHEET 2 OF 2

COASTAL AIR CONSULTING INC.

1531 Wyngate Drive DeLand, FL 32724
Phone (386) 943 9241 / Cell (386) 451-0169 / Fax (386) 943 9212

COMPLETE EMISSIONS TESTING SERVICES • PERMITTING ASSISTANCE • CEMS CERTIFICATION • AMBIENT AIR MONITORING

Emissions Test Report

No. 127-001

CRAWFORD INDUSTRIAL GROUP

PATHOLOGICAL INCINERATION UNIT
CB26H/CB200P

PARTICULATE EMISSIONS

Prepared for:

Crawford Industrial Group
9101 Parkers Landing
Orlando, FL 32824-8093

Prepared by:

Coastal Air Consulting, Inc.
1531 Wyngate Dr.
DeLand, FL 32724
(386) 943-9241

August 20, 2003

STATEMENT OF VALIDITY

All testing activities and results represented herein were conducted and obtained in accordance with the approved EPA protocols listed in 40 CFR Part 60. The contents have been reviewed and verified to be true and correct.

Stephen C. Webb

Stephen C. Webb

President
Coastal Air Consulting, Inc.
1531 Wyngate Dr.
DeLand, FL 32724
(386) 943-9241

PROJECT STATISTICS

Client:	Crawford Industrial Group
Facility:	Crawford Industrial Group Fabrication Plant Pathological Incineration Unit CB26H/CB200P
Location:	9101 Parkers Landing Orlando, FL 32824-8093
Type of Process Tested:	Animal Crematory
Test Protocols Performed:	Particulate-EPA Method 5 Opacity-EPA Method 9 Carbon Monoxide- EPA Method 10
Testing Firm:	Coastal Air Consulting, Inc. 1531 Wyngate Dr. DeLand, FL 32724
Test Personnel:	Steve Webb Site Supervisor Taylor Smith Technician Colin Smith Technician
Test Date:	July 17 & 18, 2003
Client Representative:	Mike Nadelkov
Observers:	None

TABLE OF CONTENTS

1.0 Introduction

Coastal Air Consulting, Inc. (Coastal) was contracted by Crawford Industrial Group to perform the initial compliance testing for particulate emissions, visible emissions and carbon monoxide on the Crawford Industrial Group CB26H/CB200P Pathological Incineration Unit.

The sampling program was conducted July 17 & 18, 2003. The testing was performed by Coastal personnel, with the assistance of personnel assigned by Crawford Industrial Group. Mr. Mike Nadelkov coordinated plant operation during the testing.

2.0 Test Program Summary

A summary of test results developed by this source sampling program is presented in TABLES 1,2 and 3 as follows;

TABLE 1
Summary of Particulate Emissions

Source	Particulate Grains/dscf @ 7% O2	Allowable Grains/dscf @ 7% O2
CB26H/CB200P @ 1600 ^{0}F	0.007	0.08
CB26H/CB200P @ 1800 ^{0}F	0.008	0.08

TABLE 2
Summary of Visible Emissions

Source	Average VE %	Highest 6 min. Avg. %	Allowable %
CB26H/CB200P @ 1600 ^{0}F	0.0	0.0	5
CB26H/CB200P @ 1800 ^{0}F	0.0	0.0	5

TABLE 3
Summary of CO Emissions

Source	CO ppm @ 7% O2	Permit ppm @ 7 % O2
CB26H/CB200P @ 1600 ^{0}F	0.24	100
CB26H/CB200P @ 1800 ^{0}F	0.33	100

3.0 Results of Testing

Individual test run results are shown in Tables 4 & 5 and are tabulated in Appendix 1. These results indicate that the Pathological Incineration Unit CB26H/CB200P was in compliance at the time of testing under normal operating conditions.

TABLE 4
COASTAL AIR CONSULTING, INC.

PARTICULATE EMISSION TEST SUMMARY

CLIENT: CRAWFORD INDUSTRIAL GROUP
UNIT: CB26H/CB200P
TEST: 1600^{0}F
METHOD: 5

	RUN 1	RUN 2	RUN 3
DATE OF RUN	7/17/03	7/17/03	7/17/03
START TIME (24-HR CLOCK)	1335	1500	1614
END TIME (24-HR CLOCK)	1440	1603	1715
VOL DRY GAS SAMPLED METER COND (DCF)	43.603	45.255	41.238
BAROMETRIC PRESSURE (IN. HG)	29.95	29.95	29.95
AVG ORIFICE PRESSURE DROP (IN. H20)	1.698	1.698	1.365
AVG GAS METER TEMP (F)	114.0	116.1	103.1
GAS METER CALIBRATION FACTOR	1.0260	1.0260	1.0260
VOL GAS SAMPLED STD COND (DSCF)	41.348	42.756	39.828
TOTAL WATER COLLECTED (G)	166.3	119.8	91.7
VOL WATER COLLECTED STD COND (SCF)	7.84	5.65	4.32
MOISTURE IN STACK GAS (% VOL)	15.94	11.67	9.79
MOLE FRACTION DRY GAS	0.841	0.883	0.902
CO2 VOL PERCENT DRY	10.3	11.3	5.1
O2 VOL PERCENT DRY	6.6	6.5	13.1
N2 VOL PERCENT DRY	83.10	82.20	81.80
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	29.91	30.07	29.34
MOL. WT. WET STACK GAS (LB/LB-MOLE)	28.01	28.66	28.23
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	0.00	0.00	0.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	0.01	0.01	0.01
STACK GAS STATIC PRESSURE (IN. HG ABS.)	29.95	29.95	29.95
AVERAGE SQUARE ROOT VELOCITY HEAD	0.348	0.348	0.312
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	1530.0	1570.8	1572.3
STACK GAS VELOCITY STACK COND (FT/SEC)	38.48	38.43	34.72
CROSS SECTION STACK AREA (SQ FT)	0.8	0.8	0.8
STACK GAS FLOW RATE STD COND (DSCFM)	412.4	424.0	391.0
STACK GAS FLOW RATE STACK COND (ACFM)	**1847.1**	**1844.5**	**1666.8**
NET TIME OF RUN (MIN)	60	60	60
NOZZLE DIAMETER (IN)	0.499	0.499	0.499
PERCENT ISOKINETIC	98.50	99.05	100.05
PARTICULATE COLLECTED (MG)	36.4	22.3	7.8
RESIDENCE TIME (SEC)	**1.10**	**1.11**	**1.22**
PARTICULATE EMISSIONS (GRAINS/SCF)	0.0136	0.0080	0.0030
PARTICULATE EMISSIONS (GRAINS/SCF) @ 7%O2	**0.0132**	**0.0054**	**0.0020**
PARTICULATE (LBS/HR)	0.048	0.029	0.010
AVERAGE PARTICULATE EMISSIONS (GRAINS/SCF)		0.0082	
AVERAGE PARTICULATE EMISSIONS (GRAINS/SCF) @ 7%O2		**0.0069**	

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

TABLE 5
COASTAL AIR CONSULTING, INC.

PARTICULATE EMISSION TEST SUMMARY

CLIENT: CRAWFORD INDUSTRIAL GROUP
UNIT: CB26H/CB200P
TEST: 1800^{0}F
METHOD: 5

	RUN 1	RUN 2	RUN 3
DATE OF RUN	7/18/03	7/18/03	7/18/03
START TIME (24-HR CLOCK)	948	1103	1220
END TIME (24-HR CLOCK)	1050	1205	1323
VOL DRY GAS SAMPLED METER COND (DCF)	36.443	37.272	39.434
BAROMETRIC PRESSURE (IN. HG)	30.02	30.02	30.02
AVG ORIFICE PRESSURE DROP (IN. H20)	1.251	1.203	1.284
AVG GAS METER TEMP (F)	94.3	108.5	115.8
GAS METER CALIBRATION FACTOR	1.0180	1.0180	1.0180
VOL GAS SAMPLED STD COND (DSCF)	35.554	35.448	37.039
TOTAL WATER COLLECTED (G)	157.8	112.6	99.1
VOL WATER COLLECTED STD COND (SCF)	7.44	5.31	4.67
MOISTURE IN STACK GAS (% VOL)	17.31	13.03	11.20
MOLE FRACTION DRY GAS	0.827	0.870	0.888
CO2 VOL PERCENT DRY	10.2	8.8	6.5
O2 VOL PERCENT DRY	6.5	8.3	11.0
N2 VOL PERCENT DRY	83.30	82.90	82.50
MOL. WT. DRY STACK GAS (LB/LB-MOLE)	29.89	29.74	29.48
MOL. WT. WET STACK GAS (LB/LB-MOLE)	27.83	28.21	28.19
ELEV. DIFF. FROM MANOM. TO BAROM. (FT)	0.00	0.00	0.00
STACK GAS STATIC PRESSURE (IN. H2O GAGE)	0.01	0.01	0.01
STACK GAS STATIC PRESSURE (IN. HG ABS.)	30.02	30.02	30.02
AVERAGE SQUARE ROOT VELOCITY HEAD	0.307	0.304	0.314
PITOT TUBE COEFFICIENT	0.84	0.84	0.84
AVG STACK TEMP (F)	1742.8	1745.0	1730.4
STACK GAS VELOCITY STACK COND (FT/SEC)	35.81	35.22	36.26
CROSS SECTION STACK AREA (SQ FT)	0.8	0.8	0.8
STACK GAS FLOW RATE STD COND (DSCFM)	341.9	353.3	373.8
STACK GAS FLOW RATE STACK COND (ACFM)	**1719.0**	**1690.6**	**1740.6**
NET TIME OF RUN (MIN)	60	60	60
NOZZLE DIAMETER (IN)	0.499	0.499	0.499
PERCENT ISOKINETIC	102.16	98.57	97.33
PARTICULATE COLLECTED (MG)	13.2	31.2	30.3
RESIDENCE TIME (SEC)	**1.19**	**1.21**	**1.17**
PARTICULATE EMISSIONS (GRAINS/SCF)	0.0057	0.0136	0.0126
PARTICULATE EMISSIONS (GRAINS/SCF) @ 7%O2	**0.0055**	**0.0090**	**0.0084**
PARTICULATE (LBS/HR)	0.017	0.041	0.040
AVERAGE PARTICULATE EMISSIONS (GRAINS/SCF)		0.0106	
AVERAGE PARTICULATE EMISSIONS (GRAINS/SCF) @ 7%O2		**0.0077**	

NOTE: STANDARD CONDITIONS -- 68F, 29.92 in. Hg

4.0 Description of Source

Crawford Industrial Group CB26H/CB200P is a multiple chambered, controlled air, hot hearth Batch Burn Cycle incinerator fired with propane. It has a 26 cubic foot primary chamber followed by a 34 cubic foot secondary chamber.

The flue gas is exhausted through the CB26H/CB200P stack. A schematic of the process and stack sampling location is included in Appendix 3 "Figures".

5.0 Sampling Procedures

EPA testing protocols utilized during this test program include the following;

EPA Method 1	Sample and Velocity Traverse for Stationary Sources
EPA Method 2	Determination of Stack Gas Velocity and Volumetric Flow Rate
EPA Method 3	Gas Analysis for CO2, O2, Excess Air and Dry Molecular Weight
EPA Method 4	Determination of Moisture Content in Stack Gas
EPA Method 5	Determination of Particulate Emissions from Stationary Sources
EPA Method 9	Visual Determination of The Opacity of Emissions From Stationary Sources
EPA Method 10	Determination of Carbon Monoxide Emissions From Stationary Sources

The test runs were conducted in triplicate for all parameters with each being at least 60 minutes in duration.

6.0 Operating Conditions

Crawford Industrial Group personnel monitored operating conditions throughout the duration of the sampling program. The unit was operating under normal conditions at approximately 70 lb/hr.

7.0 Quality Assurance Procedures

Quality assurance procedures followed during these activities were applied consistent with the requirements outlined by the EPA methods referenced in 40 CFR Part 60. Analyzer calibrations, system bias and drift checks were completed before and after each sample run utilizing EPA Protocol 1 calibration gases.

EPA

VISIBLE EMISSION OBSERVATION FORM 1

Form Number							Page 1	Of 1
Continued on VEO Form Number								

Method Used (Circle One): (Method 9) 203A 203B Other: _____

Company Name: Crawford Industrial Group
Facility Name:
Street Address: 9101 Parkers Landing
City: Orlando | State: FL | Zip: 32824

Process: Animal Creamator | Unit # CB2&H / CB3&H | Operating Mode: 1600 °F
Control Equipment: | Operating Mode:

Describe Emission Point: Round Stack 12"

Height of Emiss. Pt.	Height of Emiss. Pt. Rel. to Observer
Start ~20' End "	Start ~20' End "
Distance to Emiss. Pt.	Direction to Emiss. Pt. (Degrees)
Start ~75' End "	Start 75° End "

Vertical Angle to Obs. Pt.	Direction to Obs. Pt. (Degrees)
Start <18° End "	Start 75° End 75°

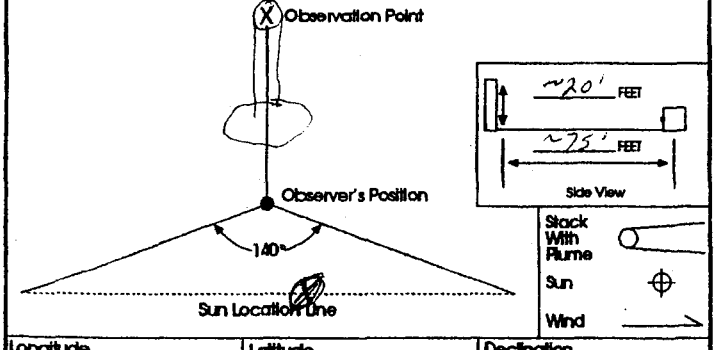
Distance and Direction to Observation Point from Emission Point: Start ~1' above End "

Describe Emissions: Start Clear / None End "
Emission Color: Start Clear End "
Water Droplet Plume: Attached ☐ Detached ☐ None ☑

Describe Plume Background: Start Gray Sky End "
Background Color: Start Gray End " | Sky Conditions: Start Cloudy End "
Wind Speed: Start 0-3 MPH End " | Wind Direction: Start Var. End
Ambient Temp.: Start 98°F End " | Wet Bulb Temp. | RH Percent

Source Layout Sketch

Draw North Arrow: ☐TN ☐MN



Longitude	Latitude	Declination

Additional Information:

Observation Date	Time Zone	Start Time	End Time
2-12-03	EST	1300	1400

Sec / Min	0	15	30	45	Comments
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	
5	0	0	0	0	
6	0	0	0	0	
7	0	0	0	0	
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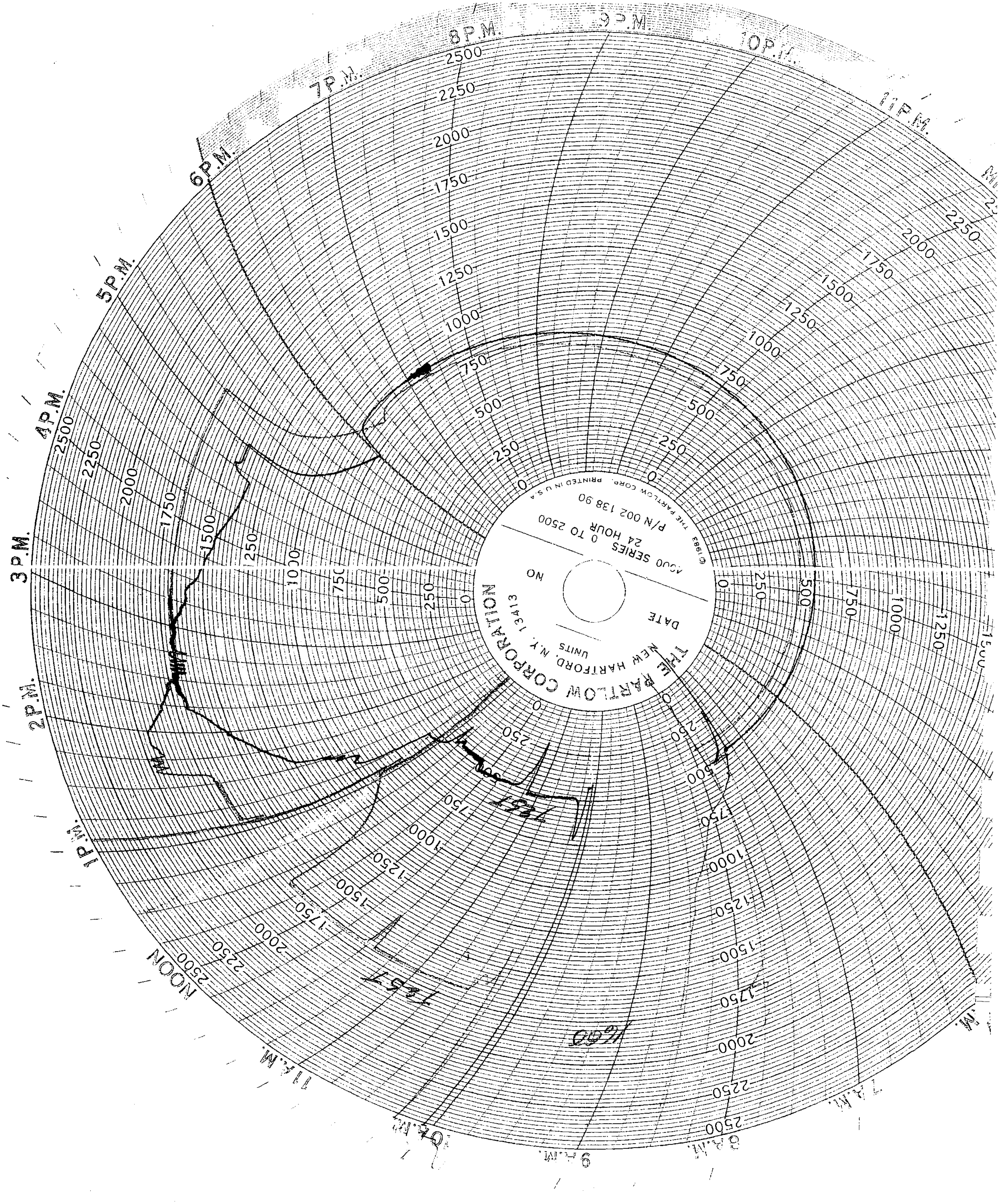
26	0	0	0	0	
27	0	0	0	0	
28	0	0	0	0	
29	0	0	0	0	
30	0	0	0	0	

Observer's Name (Print): Stephen C. Webb
Observer's Signature: Stephen C. Webb | Date: 2-17-03
Organization: Coastal Air Consulting / Inc.
Certified By: ETA | Date: 2-13-03


THE PARTLOW CORPORATION
NEW HARTFORD, N.Y. 13413
4000 SERIES
0 TO 2500
24 HOUR
P/N 002 138 90
© 1983 THE PARTLOW CORP. PRINTED IN U.S.A.
NO
DATE
UNITS
NOON
1 P.M.
2 P.M.
3 P.M.
4 P.M.
5 P.M.
6 P.M.
7 P.M.
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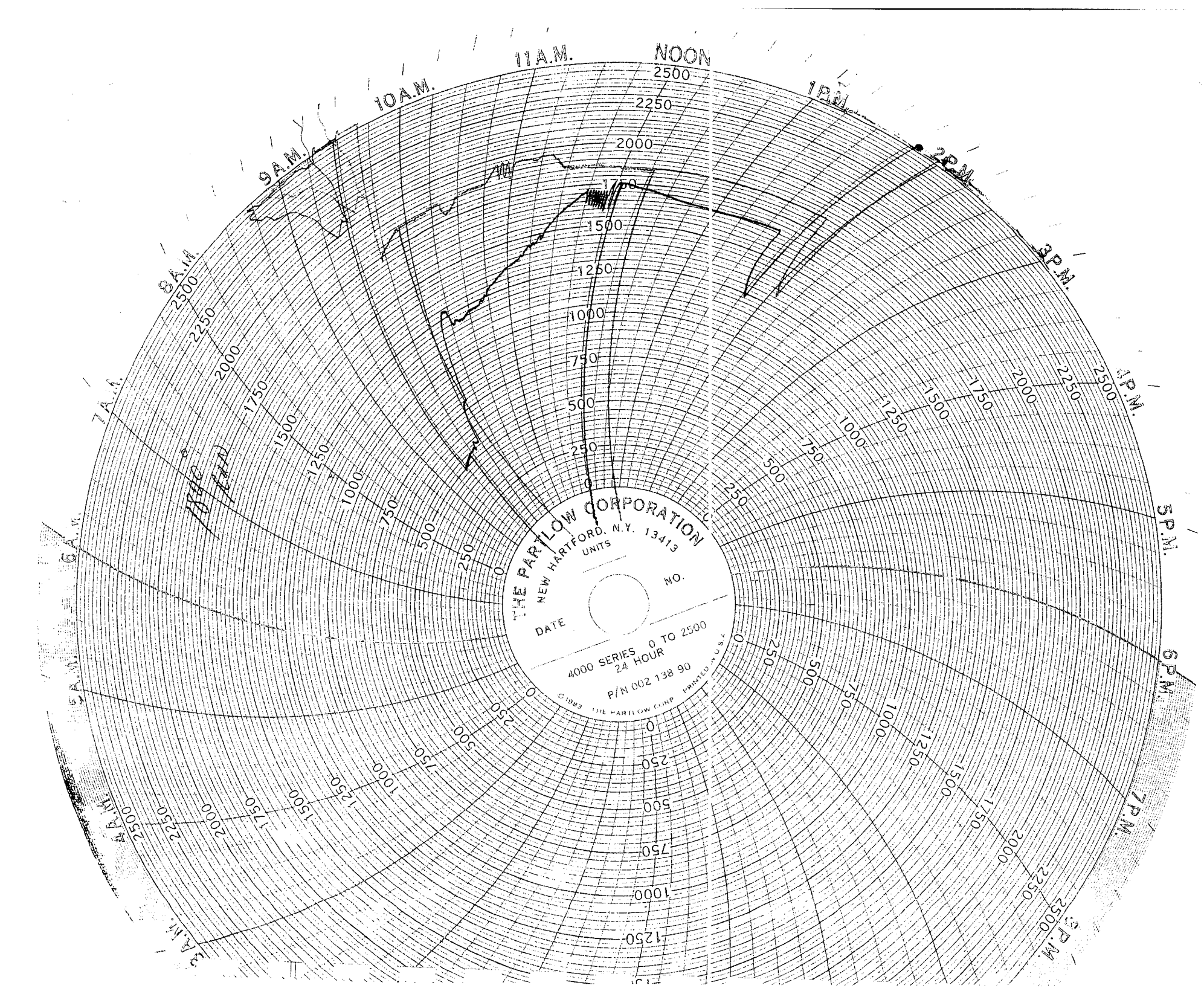
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8P.M.
9P.M.
10P.M.
11P.M.
MIDNIGHT
2500
2250
2000
1750
1500
1250
1000
750
500
250
0
THE PARTLOW CORPORATION
NEW HARTFORD, N.Y. 13413
UNITS
NO.
DATE
4000 SERIES 0 TO 2500
24 HOUR
P/N 002 138 90
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RESIDENCE TIME CALCULATIONS

Company Name: Crawford Industrial Group
Source: CB26H/CB200P
Date: 7/17/2003
Charging Rate: 70 lb/hr
Chamber Temp: 1600^{0}F

$$\frac{\text{CU. FT. X 60 SEC}}{\text{ACFM}} = \text{Residence Time Seconds}$$

Run 1:	CU. FT.	34	
	ACFM	1847.1	
	Residence Time	**1.10**	**Sec.**
Run 2:	CU. FT.	34	
	ACFM	1844.5	
	Residence Time	**1.11**	**Sec.**
Run 3:	CU. FT.	34	
	ACFM	1666.8	
	Residence Time	**1.22**	**Sec.**
Average:		**1.14**	**Sec.**

RESIDENCE TIME CALCULATIONS

Company Name: Crawford Industrial Group
Source: CB26H/CB200P
Date: 7/18/2003
Charging Rate: 70 lb/hr
Chamber Temp: 1800^{0}F

$$\frac{\text{CU. FT. X 60 SEC}}{\text{ACFM}} = \text{Residence Time Seconds}$$

Run 1:	CU. FT.	34	
	ACFM	1719	
	Residence Time	**1.19**	**Sec.**
Run 2:	CU. FT.	34	
	ACFM	1690.6	
	Residence Time	**1.21**	**Sec.**
Run 3:	CU. FT.	34	
	ACFM	1740.6	
	Residence Time	**1.17**	**Sec.**
Average:		**1.19**	**Sec.**

Appendix 2
Emission Calculations Spreadsheet
&
Results from Similar Source Stack Test

Emission Estimates for Crawford Model CB200 Crematory

Description	Annual Oper.	Units	Annual Oper.	Units
Expected	55	lbs/hour	2080	hours
PTE	70	lbs/hour	7000	hours

SO_2, NOx and TOC Emissions Estimates

Emissions based on Emission Factors (E.F.) from AP-42, Table 2.1-12.
7000 hours/yr represents the maximu potential hours of operation.

	E.F. SO_2	Units	Emissions SO_2	Units	Emissions SO_2	Units
Expected	2.5	lb/ton	0.06875	lb/hr	0.0715	tons/yr
PTE	5	lb/ton	0.175	lb/hr	0.6125	tons/yr

	E.F. NOx	Units	Emissions NOx	Units	Emissions NOx	Units
Expected	3	lb/ton	0.0825	lb/hr	0.0858	tons/yr
PTE	6	lb/ton	0.21	lb/hr	0.735	tons/yr

	E.F TOC	Units	Emissions TOC	Units	Emissions TOC	Units
Expected	3	lb/ton	0.0825	lb/hr	0.0858	tons/yr
PTE	6	lb/ton	0.21	lb/hr	0.735	tons/yr

PM & CO Emissions from Type IV Waste Combustion

Emissions based on identical source stack test (No. 127-001, 8/20/2003)

	E.F PM	Units	Emissions PM	Units	Emissions PM	Units
Expected	0.031	lb/hr	0.031	lb/hr	0.03224	tons/yr
PTE	0.05	lb/hr	0.05	lb/hr	0.175	tons/yr

	E.F CO	Units	Emissions CO	Units	Emissions CO	Units
Expected	0.0476	lb/hr	0.0476	lb/hr	0.049504	tons/yr
PTE	0.1428	lb/hr	0.1428	lb/hr	0.4998	tons/yr